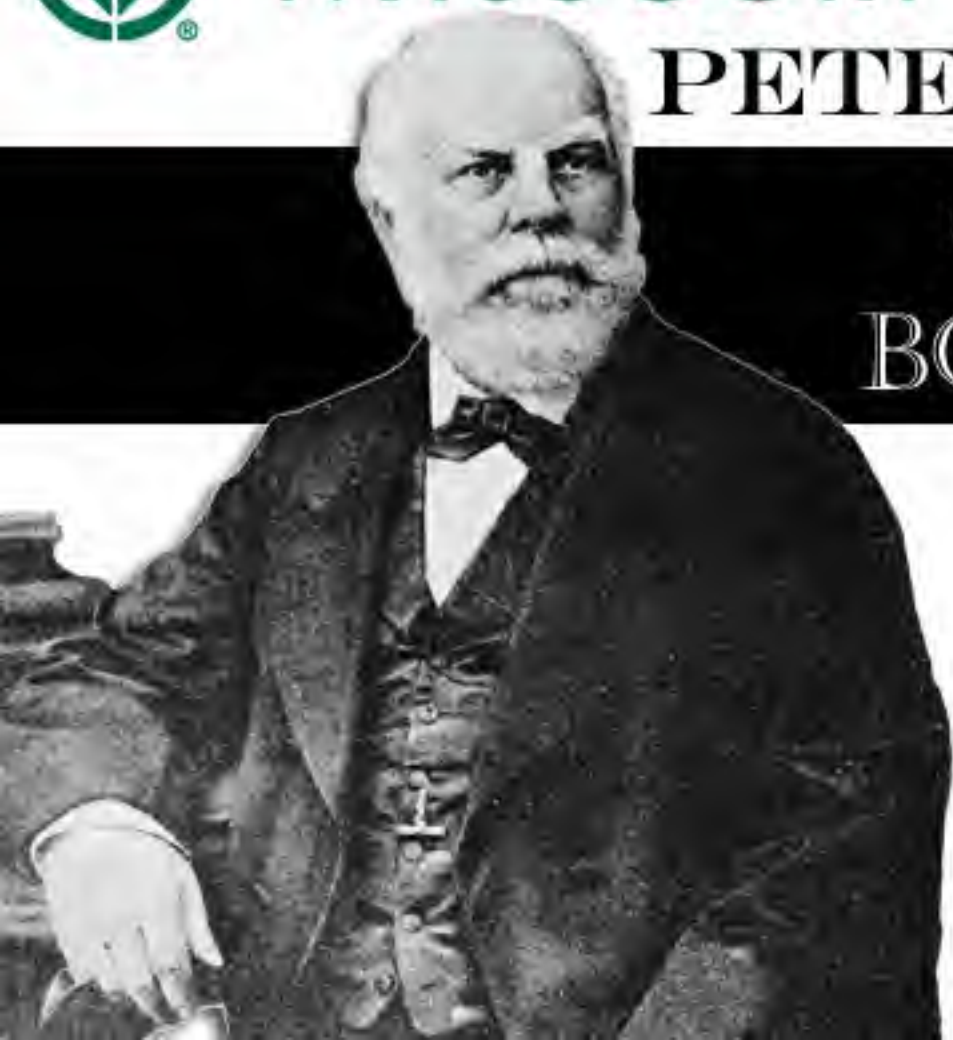


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BOTANICAL NOTEBOOKS



Pagination Note:

Since many of the items lack a specific page number, the page number displayed online refers to the sequentially created number each item was given upon cataloging the materials.

24

25

4 tab *P. Khasia*

2 tab *P. insularis*

418-423



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P. khasia

May 12 1879

Hooker & Thompson

= HB Kew

x 30



almost without hypodermis.
only on upper keel some
2 peripheral ducts on lower
side apparent, but in
the specimen which is much
shrivelled by Hooker almost
indistinct.



x 30

x 60



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APOTHECARY,

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ST. LOUIS, MO.

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Date,

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Pinus Khasia

Braconis in Herb. Kew

Nov. 14 1879

x 30



Ducts often indistinct
peripherical, near edge
hypoderm on edges and keel

x 60



Herb. Florentin

Ducts often indistinct.



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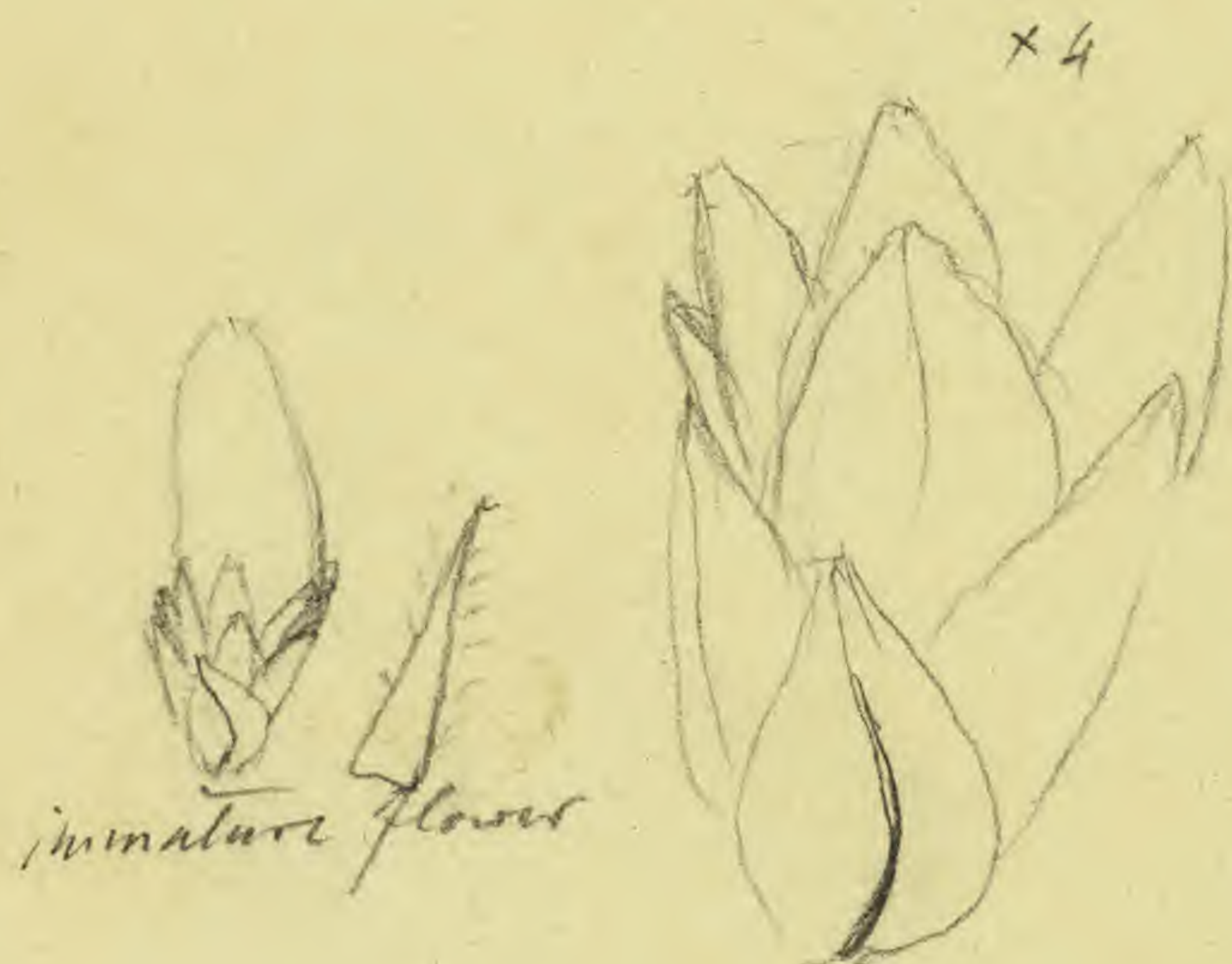
Pinus khasya

Nov 19 1879

Kumana

Brandis in HB Kew

Pollen



31-33 mm

415

0.075-0.080

14 scales



x 10



scales 13-16

A specimen in HB Mus.
Florent. is much younger
but shows the same involucre
outer scales still shorter -
less than 1/2 of the others -
all but 16 mostly long &
pointed; innermost small



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Khasya

"*Pinus longifolia*"

Nov 19 1879

Herb. ~~pinus~~ Waller's Catal. bobs in Herb. Berlin

supposed to be an error — not Waller's
bobs

but *Khasya*



x4



x10



not nearly
entire

13 scales

outer much less
than half as long
as inner ones



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P. insularis

May 12 1879

Philippine Islands, Camarines



Ducts apparently
peripheral, but
indistinct, and
often none visible
hypodermis cells in corners
and scattered, few
some within sheath



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HOELKE BROS.,

APOTHECARIES AND CHEMISTS,

S. W. Cor. Sixth & Market Sts.,

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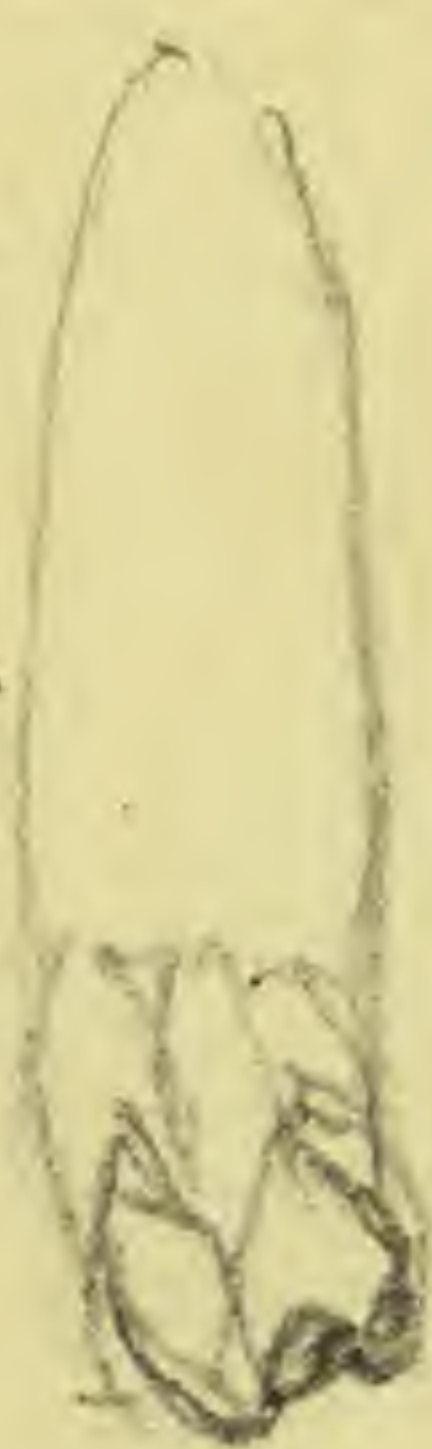
Pinus insularis

Nov.

Lanos, Philippine Island, Cummings



crest small
and almost entire



x4



8 involucral
bracts
all large, 7-8 mm long
except outer pair, 5 mm long



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8 tub

27

P. Massoniana

434-441



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GEORGE ENGELMANN PAPERS

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Pinus Massoniana

Nov 13 1879

Hong Kong, Perpetti

x 30



Ducts small, peripheral
often almost obliterated

hypoderm sparing in

corners and in very small
parties under epidermis

most leaves do not
expand after soaking
but retain their form



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No. 3003 Locust Street,



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10 Feb

P. resinosa

26

424-433



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X415

Pollen soaked

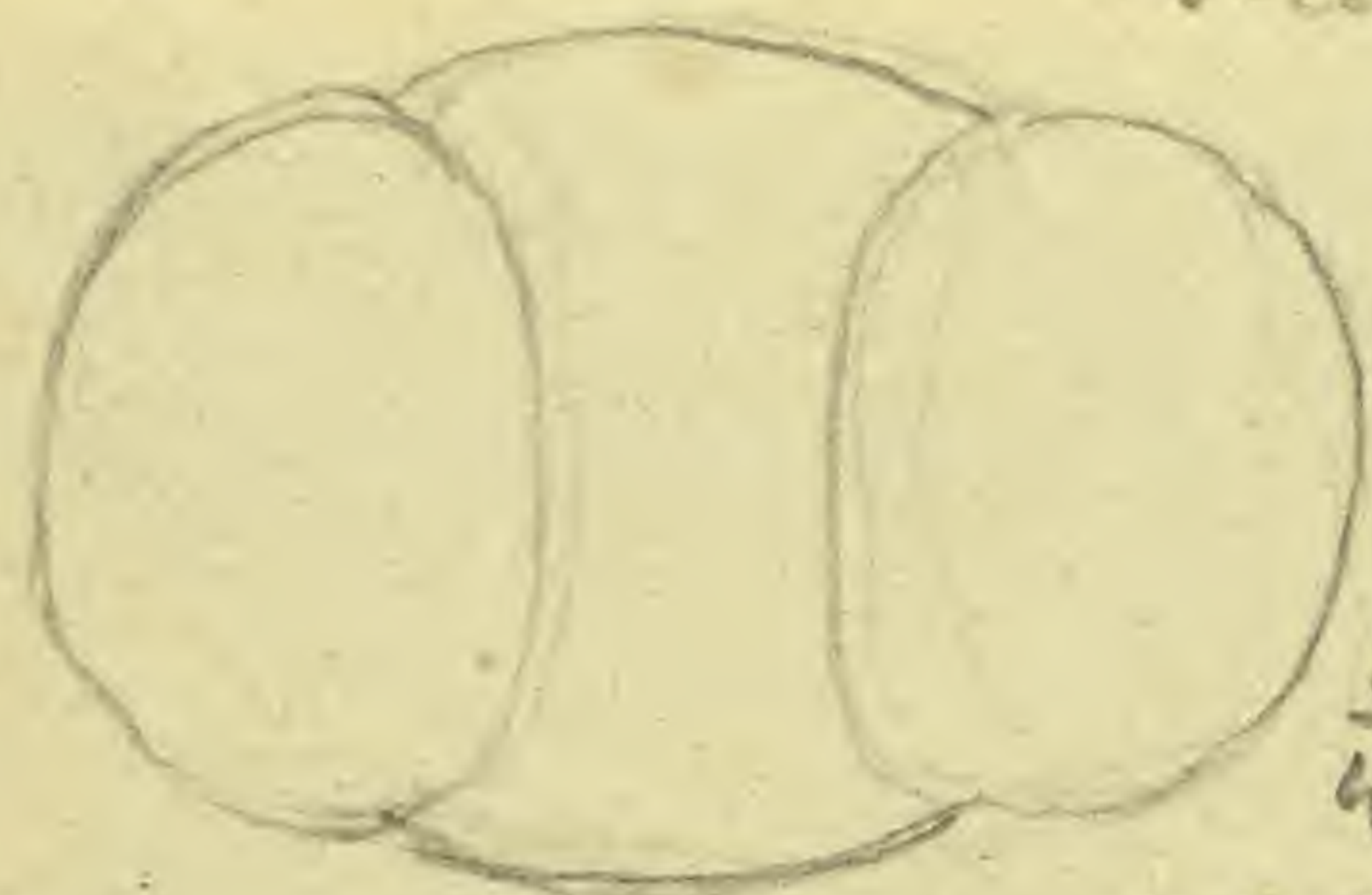
Pinus resinosa

May 1863

H. B. Missouri May 11 1863

(in private grounds) slender leaves - 2
in line to Australia

very large



$$\frac{16}{415} = 0.038 \text{ L.}$$

small



$$\frac{14.3}{415} = 0.034 \text{ L.}$$

III



$$\frac{15}{415} = 0.036 \text{ L.}$$

medium

X4



X 10

anthers soaked



dry



⊕



6 scales

(in 1865 on same tree 8 scales)

X4



three posterior bracts of involucre

over



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cm

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11423

MARTIN BRANNAN,
 APOTHECARY,
 379, N. E. CORNER BROADWAY & O'FALLON STREET,
 SIGN OF THE BLUE AND GILT MORTAR.

leaves in 6 & 17 spirals - therefore $\frac{17}{28}$ arrangement?
 (see Braun p. 129)

leaves slender

bracts of male spike deciduous, also perianth
 as in *P. sylvestris*.

involucrum of 6 bracts, in 3 pairs

bracts articulated in the middle - upper part decid.

Stamens 8-10 l. long slender

anthers in 5 & 8 spirals $\frac{8}{13}$ arrangement.

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 GEORGE ENGELMANN PAPERS



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Pinus resinosa

June 1863

Norway Maine, S. J. Smith & Co.

X4



scales
round

bract
fallen off

X10



appendages of scales
of the recurrent.

scales smaller
than circular bract
even after flowering

X30



Leaves on young shoot
in $\frac{13}{21}$ arrangement
pinnules early deciduous
bract and
scale of smaller
pinnules
scarcely
flower get



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**ARTHUR LEITCH,
APOTHECARY AND CHEMIST,**

Sixth and Market streets, St. Louis, Mo.

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Pinus resinosa

Norway, Maine,

June 1863

Frederic J. Smith, Esq.

0.034



x 10



soaked



dry & effete



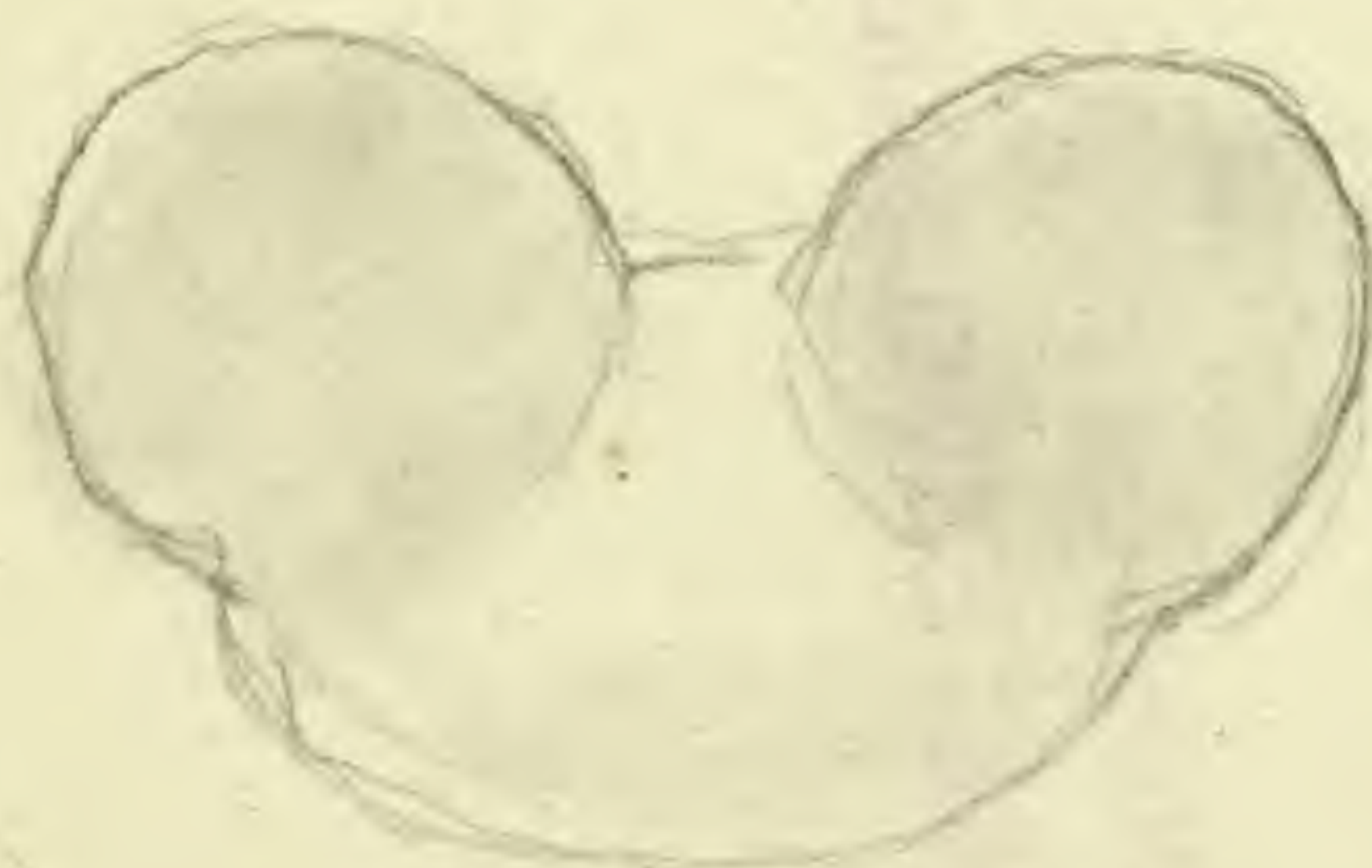
x 4

before
flowering



brut full of
also tips of involucral bracts

0.036



0.032



Pollen 0.031-0.035



Amers. Deflorat.



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**JONES & LEITCH,
Druggists,**

Corner Fifth and
Market Streets, St. Louis, Mo.

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Pinus resinosa

July 26 1863

Oconto Wis.

E. P. Austin July



Long diameter of soaked

Pollen $\times 415$

0.030 - 0.033



anther $\times 10$



Cone deep red
bud bright brown



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MISSOURI
BOTANICAL
GARDEN

11426

JONES & LETCHER

Druggists

Cor. Fifth & Market Sts. St. Louis, Mo.

J. M. A. 1878

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Pinus resinosa

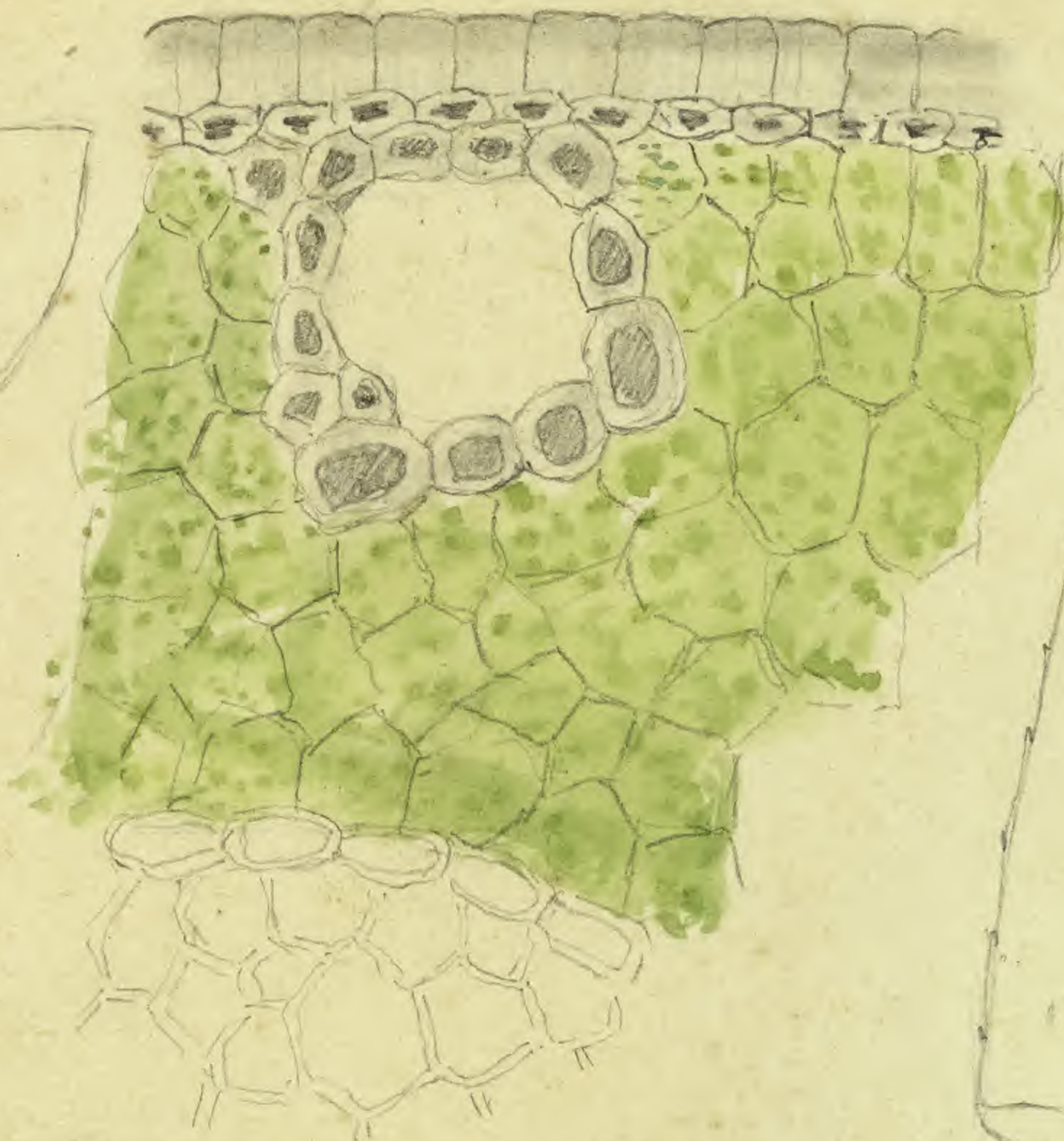
H.B. Morrison

July 1863

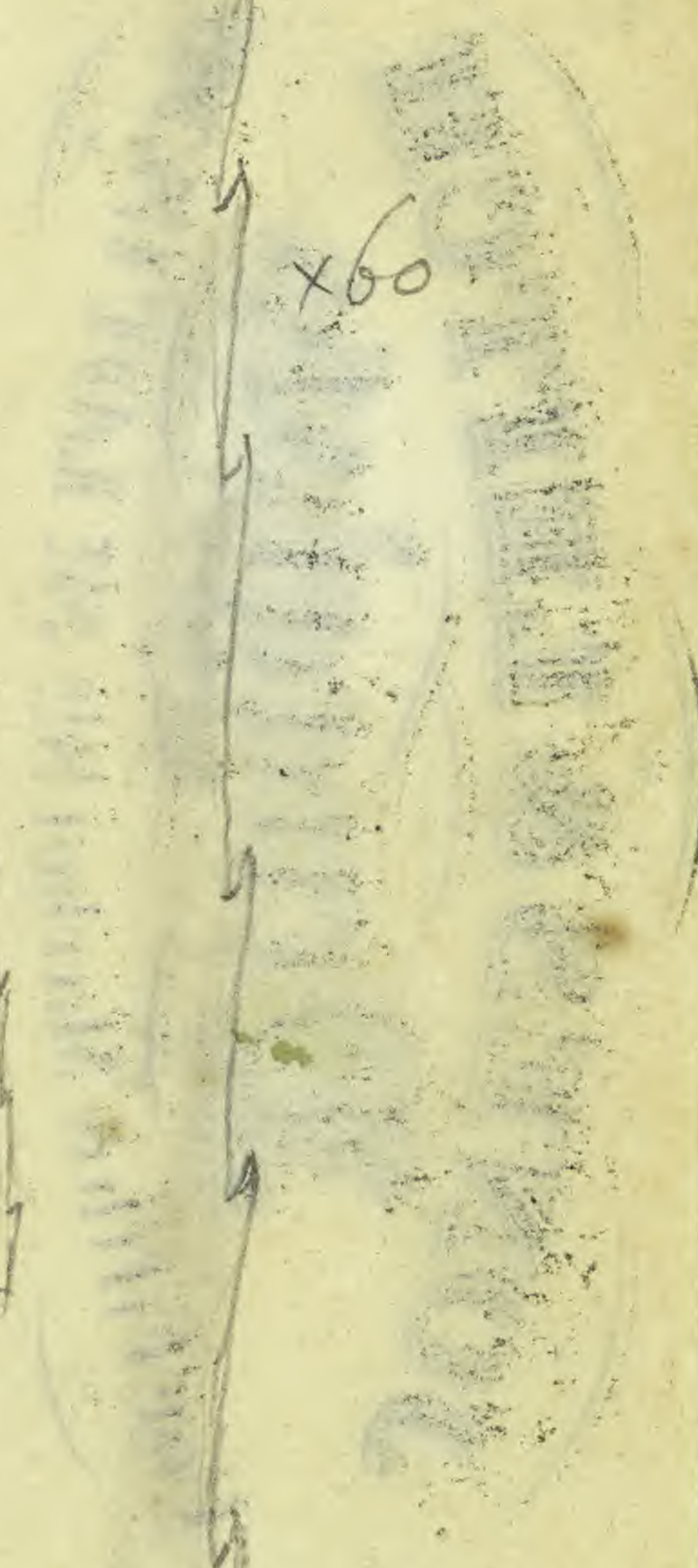
x30



x280



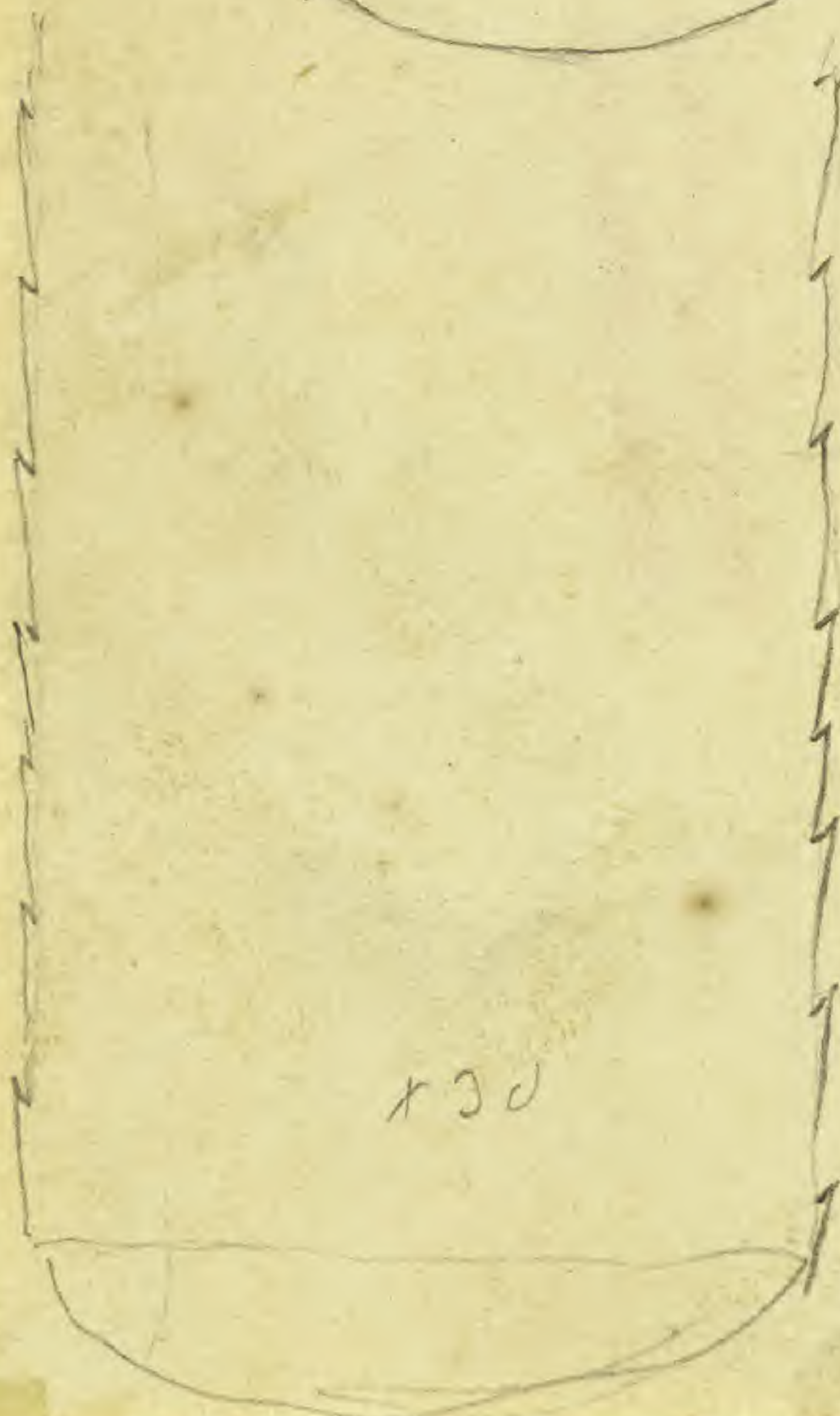
x60



x30



x30



young branch reddish

leaves 7-7½ inches long

scarcely $\frac{2}{3}$ line wide, oft only $\frac{1}{2}$ line; teeth crowded, appressed

young sheaths 12-14 li. long, old ones 4-5 lines very acute



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JONES & LETCHER

Druggists

Cor. Fifth & Market Sts. ST. LOUIS, MO.

W. H. R. & CO. ST. LOUIS, MO.

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seed x4

Pinus resinosa
St. Croix, Minnesota & Parry

19 Oct 1863



upper outer lower inner
side

seed 2 lines
long, lightly
grooved on
lower side

x10



cotyled
short



x2



x4

one embryo 7 cotyl
6 — 6 —
all from one cone



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JONES & LETCHER
DRUGGISTS

COR. FIFTH & MARKET STREETS,

ST. LOUIS, MO.

J. McKittrick & Co. One Main & Pine

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April & May 1865

young aments of
Pinus resinosa

H.B. Mission. April 24 1865 -
red purple, 2 lines long,
already the bracts and
tips of perigonial bracts
separating



8 perigon-
bracts
seen sometimes

often only 6



April 24. 0.014



May 7

0.035

flowering ament, 9 l. long
red, in very short spikes
axis only 6-7 l. long

Pollen fr. April 24 to May 7th (or
rather May 5 - as it was in full flower
there) grown fr. 0.014 - 0.035. l. l.



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ALEX. LEITCH,

APOTHECARY & PHARMACEUTIST

Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

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"*Pinus resinosa*"
(where from?)

May 6 1878

x 30



2 principal ducts on upper surface, close to epidermis

3-5 Dorsal ducts
close to epidermis

3-5 dorsal ducts
parachloral

(perhaps tip or base of
leaf??)

all ducts surrounded by hypoderm
not much hypoderm besides this



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No. 3003 Locust Street.



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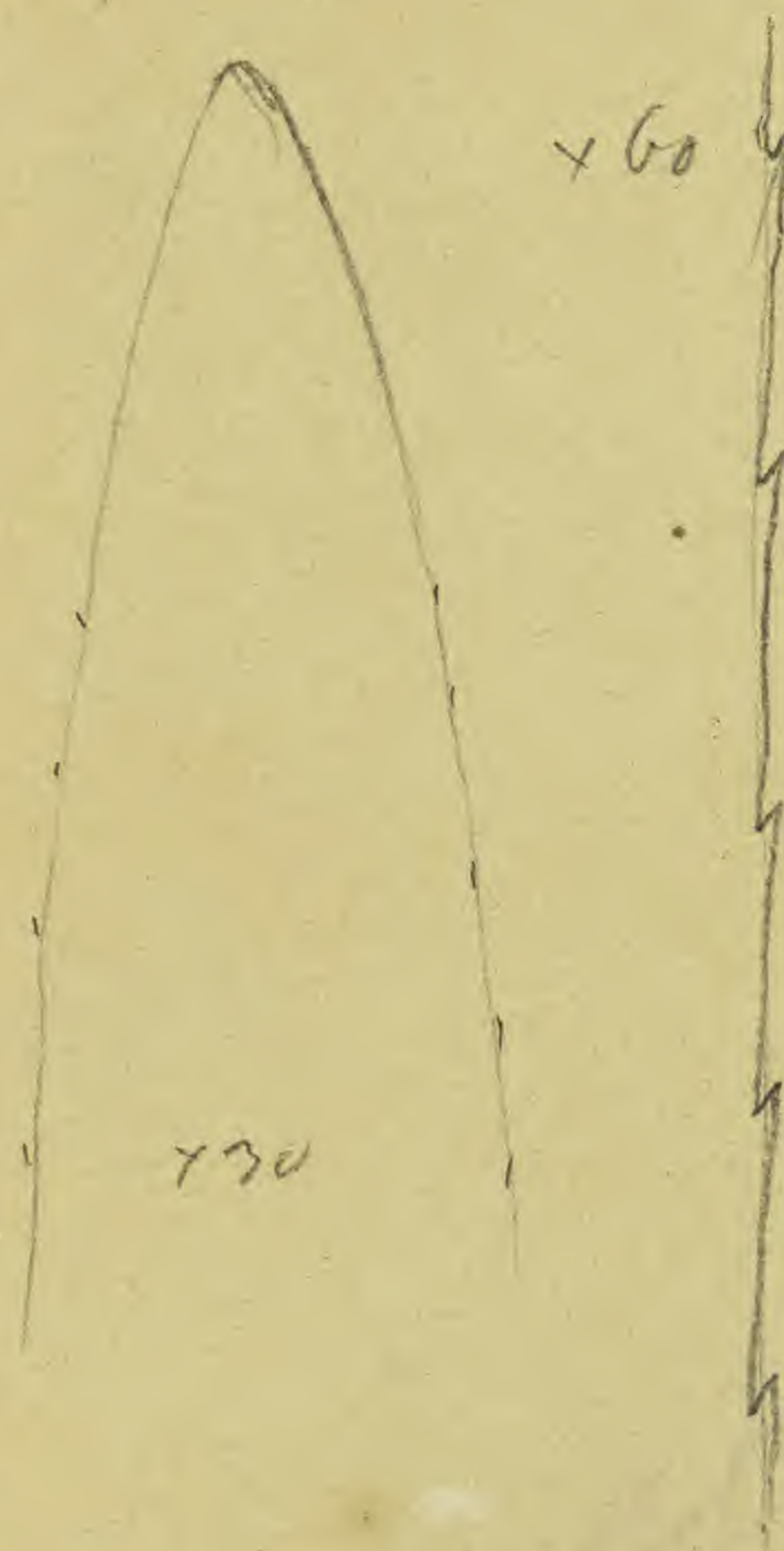
Pinus resinosa

May 12 1878

H.B. Midway, young tree, fresh



2 ducts peripheral,
always on the upper surface
surrounded by hypodermis
a few (2-3) hypodermis cells
in the corners - no other.



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Pian

May 21 1879

H. B. M. M. M. 1878

Subterminal



resinosa

~~Montana~~

2 periph. dent. on upper side
with weak hypoderm cells
no other hypoderm cells seen!



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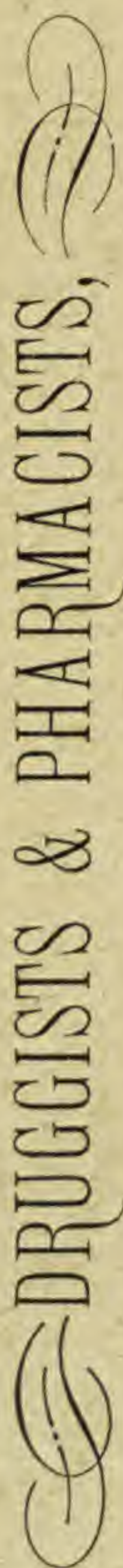
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DRUGGISTS & PHARMACISTS,

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